

5-9 Skills Practice

Complex Numbers

Simplify.

1. $\sqrt{-36}$

$6i$

2. $\sqrt{-196}$

3. $\sqrt{-81x^6}$

4. $\sqrt{-23} \cdot \sqrt{-46}$

5. $(3i)(-2i)(5i)$

$-30i^3 = -30i^2$
 $30i$

6. $i^{11} = -i$

7. $i^{65} = i$

8. $(7 - 8i) + (-12 - 4i)$

9. $(-3 + 5i) + (18 - 7i)$

$15 - 2i$

10. $(10 - 4i) - (7 + 3i)$

$3 - 7i$

11. $(2 + i)(2 + 3i)$

$4 + 6i + 2i + 3i^2$
 $1 + 8i$

12. $(2 + i)(3 - 5i)$

13. $(7 - 6i)(2 - 3i)$

14. $(3 + 4i)(3 - 4i)$

15. $\frac{8 - 6i}{3i}$

$-\frac{6 - 8i}{3}$

16. $\frac{3i}{4 + 2i}$

$\frac{3 + 6i}{10}$

Solve each equation.

17. $3x^2 + 3 = 0$

$\pm i$

18. $5x^2 + 125 = 0$

19. $4x^2 + 20 = 0$

20. $-x^2 - 16 = 0$

$\pm 4i$

21. $x^2 + 18 = 0$

22. $8x^2 + 96 = 0$

Find the values of m and n that make each equation true.

23. $20 - 12i = 5m + 4ni$

$m = 4$ $n = -3$

24. $m - 16i = 3 - 2ni$

$m = 3$ $n = 8$

25. $(4 + m) + 2ni = 9 + 14i$

26. $(3 - n) + (7m - 14)i = 1 + 7i$